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EXAMINER

SHINGLETON, MICHAEL B

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/888,823

Applicant(s)

Page

Examiner

SHINGLETON

Group Art Unit

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— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE Three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 4-16-2003

☒ This action is FINAL.

- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1, 3-21 is/are pending in the application.

Of the above claim(s) 3, 4, 8-14 is/are withdrawn from consideration.

☒ Claim(s) 15-19 is/are allowed.

☒ Claim(s) 1, 5-7, ²⁰ and 21 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kusunoki 5,471,656 (Kusunoki)

Figure 1 of Kusunoki discloses a method of controlling an RF power amplifier 4 wherein during the low points in the input signal, the bias, i.e. power supply is removed so as to reduce power consumption. Element 1 of Kusunoki inherently measures the magnitude of the input signal (either directly or indirectly) for as noted above and recited in columns 1 and 2 of Kusunoki, the times when there is no input are the times when the bias is cutoff, i.e. removed. Kusunoki inherently ascertains the measurement of the input signal. Also note that element 1 in Figure 1 of Kusunoki is connected to the input and thereby uses the input as part of its control. During the times in the multiplexed signal when a signal is applied to element 4 a bias signal is applied to the RF power amplifier during this "normal" operation period. The bias signal from element 3 is shown as a static source, i.e. one that does not vary. Accordingly, when the input signal is above a certain threshold, i.e. an input signal is being applied to the RF power amplifier 4 the bias signal is considered "static". When there is no signal applied to the input of the RF power amplifier 4, the input signal is clearly below a predetermined threshold. This is sensed, i.e. measured, either directly or indirectly by main controller 1.

Claim Rejections - 35 USC § 103

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusunoki 5,471,656 (Kusunoki) in view of Pan et al. 5,920,596 (Pan).

Figure 1 of Kusunoki discloses a method of controlling an RF power amplifier 4 wherein during the low points in the input signal, the bias, i.e. power supply is removed so as to reduce power consumption. Element 1 of Kusunoki inherently measures the magnitude of the input signal (either directly or indirectly) for as noted above and recited in columns 1 and 2 of Kusunoki, the times when

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there is no input are the times when the bias is cutoff i.e. removed. Also note that element 1 in Figure 1 of Kusunoki is connected to the input and thereby uses the input as part of its control. During the times in the multiplexed signal when a signal is applied to element 4 a bias signal is applied to the RF power amplifier during this "normal" operation period. The bias signal from element 3 is shown as a static source, i.e. one that does not vary. Accordingly when the input signal is above a certain threshold, i.e. an input signal is being applied to the RF power amplifier 4 the bias signal is considered "static". When there is no signal applied to the input of the RF power amplifier 4, the input signal is below a predetermined threshold. This is sensed, i.e. measured, either directly or indirectly by main controller 1.

Kusunoki is silent on whether or not the high frequency signal is a digital one and is silent on the use of a buffer connected to the signal. Kusunoki is also silent on the aspect of having the bias signal changed prior to the input signal being provided to the amplifier. As to the time delay of the input signal such is seen as being merely the selection of the optimum or workable range for the system. It would be inefficient to turn on the power supply when no signal is present and the device would not amplify if no power is applied to the amplifier. Since this selection of the optimum or workable range involves but routine skill in the art, the selection of these delays would have been obvious to one of ordinary skill in the art at the time the invention was made.

Figure 2 of Pan discloses a digital signal applied to a time delay element which can be considered to be a buffer since the term buffer is a broad term. Furthermore, the digital signal is applied to an up converter 16 in the same manner as applicant's invention (See the first full paragraph of column 3 of Pan.). Pan teaches that by using such an arrangement a digital signal can be amplified which as is known to those of routine skill in the art that a digital signal has a much better signal to noise ratio.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a digital signal in Kusunoki and buffer the signal in Kusunoki and then apply such a base-band signal to an up-converter in the arrangement of Kusunoki so as to improve the signal to noise ratio as taught by Pan and as it well-known to those of routine skill in the art.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faulkner et al. 5,420,536 (Faulkner) in view of Kusunoki 5,471,656 (Kusunoki).

Figure 7 of Faulkner discloses a RF power amplifier method that includes a digital signal I, Q, a buffer 66b, and a buffer 66a for the digital representation of power. Also element 60 can be considered as a buffer for the digital representation of power. The digital representation of power is preformed by element 56. Figure 7 of Faulkner also shows a converter, i.e. modulator that converts the base band to RF (See column 7, lines 38-41). Column 9, lines 30-48 describes the operation of the mapping element 58

that in turn controls the bias to the amplifier as a function of the power of the digital signal. Faulkner fails to disclose turning on and off the bias signal based upon the state of the input base-band signal.

Figure 1 of Kusunoki discloses measuring the input of a signal to be applied to an amplifier 4 and based upon this signal to turn off the bias source when no signal is present and turn-on the bias source when a signal is present. This saves energy.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine either directly or indirectly the measurement of the input signal i.e. whether the signal is present or not and turn off the bias source when the input signal is below a threshold i.e. it is off so as to save energy by no running the amplifier during these times as taught by Kusunoki.

Response to Arguments

Applicant's arguments filed 4-16-2003 have been fully considered but they are not persuasive. Applicant states that the prior art of record (Kusunoki) does not show the invention as is now recited by amended claim 1. The examiner respectfully disagrees. Applicant specifically points to elements of Figure 2 of Kusunoki in the remarks, but the rejection of at least claim 1 was also based upon Figure 1 of Kusunoki. Applicant does not specifically point to the portion of the rejection that involves Figure 1 of Kusunoki and is seen as not disagreeing with this portion of the rejection. Note that the examiner has given the claims the broadest reasonable interpretation and measuring by definition is "to ascertain the measurements of". Clearly, determining whether or not a input signal exists is "to ascertain the measurements of" the signal. This is done via the main controller 1 of Figure 1 of Kusunoki. Specifically, Figure 1 of Kusunoki is directed to a "time-division multiplex system" in which amplifier 4 only amplified one time slot, its time slot. During the times when no signal is present, i.e. when the input signal is switched elsewhere or in other words during time slots other than its own time slot, the Figure 1 invention of Kusunoki saves power by removing the bias signal to the RF power amplifier. As stated previously, Kusunoki inherently measures, i.e. ascertains, the magnitude of the input signal to the amplifier 4 either directly or indirectly and based upon this measurement when no signal is present, i.e. when magnitude of the input signal is below "a predetermined threshold", the bias signal is removed in the manner noted above. Applicant has not disputed this fact.

Applicant argues that claims 5-7 being dependent either directly or indirectly upon claim 1 which is believed by applicant to be allowable should also be allowed. No other arguments as to the specifics of these claims are given. Since claim 1 continues to be rejected and no specifics are given as to how these

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claims are considered to be separately patentable, these claim 5-7 are rejected for the same reasons as presented in the previous office action.

Applicant requests the reinstatement of claims 3, 4 and 8 since applicant believes hat claim 1 is now allowable. Since claim 1 continues to be rejected over art these claims directed to the non-elected invention will remain withdrawn from consideration.

Claims 15-19 are allowed for the reasons given in the previous rejection and those present by applicant in the remarks dated 4-16-2003 (See page 6 thereof.).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

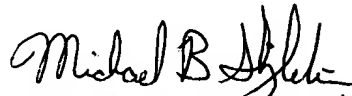
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is 703-308-4903. The examiner can normally be reached on Monday-Thursday from 8:00 to 4:30. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (703) 308-4909. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

MBS

July 1, 2003


MICHAEL B. SHINGLETON
PRIMARY EXAMINER
GROUP 1, JULY 2003